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सम्भरक रेटिंग प्रणाली के विकास के लिए मार्गदर्शिका

(पहला पुनरीक्षण)

Indian Standard

GUIDELINES FOR DEVELOPMENT OF SUPPLIER RATING SYSTEM

(First Revision)

ICS 03.100.10

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

October 2001

Price Group 9

Quality Management Sectional Committee, MSD 2

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Quality Management Sectional Committee had been approved by the Management and Systems Division Council. The quality of the product depends upon, among others, the quality of inputs. It is, therefore, essential that the material is procured only from those suppliers who have demonstrated their capability to supply the material of desired quality and quantity at an acceptable cost and time schedule. However, in the prevailing practice of verification of supplier's capability such as machinery and equipment held, availability of required test facilities, list of orders executed or on hand and financial background are considered. This gives only a limited view towards the capacity of the supplier and not his capability. It is, therefore essential to rate or classify the suppliers on objective basis taking into consideration the attributes of quality, price, delivery, service, system and such other factors as are relevant.

Supplier rating system is a system of assessing the performance of a supplier in comparison with other suppliers with a view to drawing up a comparative scale that can be used to arrive at any of the following decisions:

a) To assess and select a supplier from group of suppliers on rational basis for specific products;

b) To continue to procure the products from the same supplier;

c) To distribute the total requirement of a product amongst various suppliers; and

d) To optimize incoming inspection efforts including self-certification.

Every organization should carry out a detailed analysis of its needs and then evolve a suitable supplier rating system. The supplier rating system should be as simple as possible.

This Indian Standard was originally published in 1987. This revision is based on significant developments in the field of quality system and the experience gained in implementing the existing standard. The important changes are given below:

a) The quality rating was earlier based on the quantity accepted and rejected. The closeness to the targeted value was not considered. Further, it was not based on process variability. This revision based on process capability indices Cp and Cpk takes care of these deficiencies.

b) The importance of quality system has been realized world over particularly after the publication of ISO 9000 series of standards on Quality Management System. Keeping this view, a new parameter for supplier rating termed as 'system rating' has been included as a part of the overall supplier rating.

c) For user-friendliness and easy implementation, ready tables have been provided for computing quality rating. This will minimize the computational work to be done by the users of this standard.

The composition of the Committee responsible for the formulation of this standard is given in Annex D.

In reporting the result of a test or analysis, if the final value, observed or calculated is to be rounded off, it shall be done in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'.

Indian Standard
GUIDELINES FOR DEVELOPMENT OF SUPPLIER RATING SYSTEM
(First Revision)

1 SCOPE

This standard lays down the guidelines for development of supplier rating system for procurement of materials of desired quality and required quantity at the acceptable cost and time schedule.

2 REFERENCES

The Indian Standards listed below contain provisions, which through reference in this text constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards:

IS No.	*Title*
2500 (Part 1) : 2000/ISO 2859 – 1 : 1999	Sampling inspection procedures: Part 1 Attribute sampling plans indexed by acceptable quality level (AQL) for isolated lot inspection
2500 (Part 2) : 1965	Sampling inspection procedures: Part 2 Inspection by variables for percent defective
7200 (Part 3) : 1982	Presentation of statistical data: Part 3 Management information system — Quality control
IS/ISO 9004 : 2000	Quality Management Systems – Guidelines for performance improvement
13174 (Part 1) : 1991	Life cycle costing: Terminology
(Part 2) : 1994	Methodology

3 OBJECTIVE

3.1 The main objective of a supplier rating system in an organization is to assess the performance of a supplier in comparison with other suppliers with a view to draw comparative scale to make decisions. Important aspects of a supplier rating system are given in **3.1.1** to **3.1.5**.

3.1.1 *Supplier Appraisal*

The trend in the supplier rating of a particular supplier helps in identifying potential trends of supplies to come. Decrease in rating of a particular supplier is a signal to take corrective and preventive actions.

3.1.2 *Supplier Selection*

Supplier rating acts as a guide for future comparative supplier selection. Based on adequate supplier rating, the purchase department of an organization itself may decide on supplier selection. In the absence of a supplier rating system, every time matter needs to be referred to the concerned departments for proper evaluation before selection is made.

3.1.3 *Management Policy*

Management should determine trends of ratings of suppliers and periodically review its procurement policy.

3.1.4 *Inspection*

An effective supplier rating system helps in updating the supplier's quality plan to the most economic level by either increasing or decreasing inspection of the material received or supplier source inspection/self-certification.

3.1.5 *Development of Long-Term Relationship with the Supplier*

4 CONSIDERATION FOR DEVELOPMENT OF SUPPLIER RATING SYSTEM

The need for development of a supplier rating system should be decided by the responsible management keeping the following factors into consideration:

a) Cost of the supplier rating system *versus* the anticipated return (economic consideration),

b) Proportion of purchased material *versus* total cost of goods shipped (make *versus* buy decision),

c) Criticality of products being purchased, and

d) Product mix and diversification considerations.

5 SUPPLIER RATING SYSTEM

The overall supplier rating system comprises the following:

a) Supplier rating (Assessment of supplier performance),
b) Supplier grading (Assessment of new supplier),
c) Supplier preferences, and
d) Rewards system.

6 SUPPLIER RATING

6.1 Suppliers may be rated based on any or all of the following factors:

a) Quality,
b) Price,
c) Delivery,
d) Service, and
e) System.

6.2 Quality Rating

6.2.1 In case of 100 percent inspection of the material in the lot, quality rating will be computed as follows:

$$Q_R = \frac{Q_1 + X_1\ Q_2 + X_2\ Q_3}{Q} \times 100$$

where

Q_1 = quantity accepted,

Q_2 = quantity accepted with deviation,

Q_3 = quantity accepted with rectification,

Q = total quantity supplied ($Q_1 + Q_2 + Q_3 + Q_4$),

Q_4 = quantity rejected,

X_1 = demerit factor (less than one) when material is accepted with deviation, and

X_2 = demerit factor (less than one) when material is accepted with rectification.

The values of X_1 and X_2 are to be decided by the management in consultation with quality management group depending upon the resulting losses associated with the type of industry, product and specific need.

6.2.2 In case of sampling inspection following methods for different situations will be used.

6.2.2.1 *Quality rating for variable parameter of a product*

a) Normal distribution expected:

[For sample sizes mentioned in subsequent paragraphs *see* IS 2500 (Part 2)].

i) Two-sided tolerance (sample size > 1)

$$Q_R = 50 - 200\ [\{(\bar{X} - \text{Target})/\text{Tolerance}\}^2] + 25\ \text{Tolerance}/4s$$

where

Target = ($U + L$)/2, Tolerance = ($U - L$), and

U and L are upper and lower specification limits respectively

Estimated Process variance = s^2

$$= \sum \frac{(x - \bar{x})^2}{n - 1}$$

$$= \left[\frac{1}{(n-1)}\right] \left[\frac{\sum x - (\sum x)^2}{n}\right]$$

where

n = sample size

NOTE — This provides for Q_R of 50 each for hitting the target and for process capability index equaling 1.33.

For ease of calculation, the calculated values of Q_R for a given value of Tolerance/s and ($\bar{x}$-Target)/ Tolerance are given in Table 1 and Table 2 respectively.

ii) Two sided tolerance (sample size = 1)

This is often the case in chemical industry and also in tool industry.

$$Q_R = 100 - 400\ \{(\bar{x} - \text{Target})/\text{Tolerance}\}^2$$

NOTE — In this situation 's' is not estimable. Therefore no provision is made to Q_R in respect of process capability. However, over a period of time, when many lots are received and 's' is estimable then 1) above may be used for overall Q_R.

For ease of calculation, the calculated values of Q_R for a given value of ($\bar{x}$ – Target)/Tolerance are given in Table 2.

iii) Two sided tolerance (sample size >1), but target either U or L preferred, for example, Tool, Die, Jig and Fixture, etc, to maximize its life:

$$Q_R = 50 - 50[\{(\bar{X} - \text{Target})/\text{Tolerance}\}^2] + 25\ \text{Tolerance}/4s$$

Provided that $\bar{X}_i$'s and $\bar{X}$ lie between U and L; if they lie beyond U or L, negative Q_R should be imparted and treated as zero.

$$Q_R = 100 - 100[(\bar{X} - \text{Target})/\text{Tolerance}]^2$$

If tool production is non repetitive that is sample size is 1 use the formula at (2).

For ease of calculation, the calculated values of Q_R for a given value of ($\bar{x}$ – Target)/Tolerance are given in Table 2.

iv) For one sided tolerance when only U or L is specified:

$$Q_R = 100\ (\bar{x} - L)/4s \text{ or } 100\ (U - \bar{x})/4s$$

NOTE — In this situation tolerance is not defined. Therefore no provision is made to Q_R in respect of process capability. It may be noted that supplier with poorer capability is automatically penalized by keeping higher/lower average to his disadvantage benefiting the customer.

For ease of calculation, the calculated values of Q_R for a given value of $(\bar{x} - L)/s$ or $(U - \bar{x})/s$ are given in Table 3.

b) Skewed distribution expected:

Only U is specified for example eccentricity, centrality, taper, ovality, squareness, deflection.

$Q_R = 100\,U/4X$

NOTE — 's' is influenced by X. Therefore, this score is fairly representative.

c) Q_R of an item:

When sample size is one, the Q_R may be considered as Q_R of an item. However, if the sample is examined for more than one parameter, the average Q_R or minimum among these may be considered as Q_R of an item.

Table 1 Calculated Values of Tolerance/*s*

(*Clause* 6.2.2.1)

Sl No. (1)	Tolerance/s (2)	Quality Rating out of 50 (3)
1	0.1	0.63
2	0.2	1.25
3	0.3	1.88
4	0.4	2.50
5	0.5	3.13
6	0.6	3.75
7	0.7	4.38
8	.08	5.00
9	0.9	5.63
10	1.0	6.25
11	1.1	6.88
12	1.2	7.50
13	1.3	8.13
14	1.4	8.75
15	1.5	9.38
16	1.6	10.00
17	1.7	10.63
18	1.8	11.25
19	1.9	11.88
20	2.0	12.50
21	2.1	13.13
22	2.2	13.75
23	2.3	14.38
24	2.4	15.00
25	2.5	15.63
26	2.6	16.25
27	2.7	16.88
28	2.8	17.50
29	2.9	18.13
30	3.0	18.75
31	3.1	19.38
32	3.2	20.00
33	3.3	20.63
34	3.4	21.25
35	3.5	21.88
36	3.6	22.50
37	3.7	23.13
38	3.8	23.75
39	3.9	24.38
40	4.0	25.00
41	4.1	25.63
42	4.2	26.25
43	4.3	26.88
44	4.4	27.50
45	4.5	28.13
46	4.6	28.75
47	4.7	29.38
48	4.8	30.00
49	4.9	30.63
50	5.0	31.25
51	5.1	31.88
52	5.2	32.50
53	5.3	33.13
54	5.4	33.75
55	5.5	34.38
56	5.6	35.00
57	5.7	35.63
58	5.8	36.25
59	5.9	36.88
60	6.0	37.50
61	6.1	38.13
62	6.2	38.75
63	6.3	39.38
64	6.4	40.00
65	6.5	40.63
66	6.6	41.25
67	6.7	41.88
68	6.8	42.50
69	6.9	43.13

Table 1 *(Concluded)*

Sl No. (1)	Tolerance/s (2)	Quality Rating out of 50 (3)
70	7.0	43.75
71	7.1	44.38
72	7.2	45.00
73	7.3	45.63
74	7.4	46.25
75	7.5	46.88
76	7.6	47.50
77	7.7	48.13
78	7.8	48.75
79	7.9	49.38
80	8.0	50.00

Table 2 Calculated Values of Tolerance/*s*

(*Clause* 6.2.2.1)

Sl No.	(X–Target)/ Tolerance	Quality Rating			
		Two Sided		Either *U* or *L* Preferred	
		n > 1	n = 1	n > 1	n = 1
		Out of 50	Out of 100	Out of 50	Out of 100
(1)	(2)	(3)	(4)	(5)	(6)
1	0.00	50.00	100.00	50.00	100.00
2	0.01	49.98	99.96	50.00	99.00
3	0.05	49.50	99.00	49.88	95.00
4	0.10	48.00	96.00	49.50	90.00
5	0.11	47.58	95.16	49.40	89.00
6	0.12	47.12	94.24	49.28	88.00
7	0.13	46.62	93.24	49.16	87.00
8	0.14	46.08	92.16	49.02	86.00
9	0.15	45.50	91.00	48.88	85.00
10	0.16	44.88	89.76	48.72	84.00
11	0.17	44.22	88.44	48.56	83.00
12	0.18	43.52	87.04	48.38	82.00
13	0.19	42.78	85.56	48.20	81.00
14	0.20	42.00	84.00	48.00	80.00
15	0.21	41.18	82.36	47.80	79.00
16	0.22	40.32	80.64	47.58	78.00
17	0.23	39.42	78.84	47.36	77.00
18	0.24	38.48	76.96	47.12	76.00
19	0.25	37.50	75.00	46.88	75.00
20	0.26	36.48	72.96	46.62	74.00
21	0.27	35.42	70.84	46.36	73.00
22	0.28	34.32	68.64	46.08	72.00
23	0.29	33.18	66.36	45.80	71.00
24	0.30	32.00	64.00	45.50	70.00
25	0.31	30.78	61.56	45.20	69.00
26	0.32	29.52	59.04	44.88	68.00
27	0.33	28.22	56.44	44.56	67.00
28	0.34	26.88	53.76	44.22	66.00
29	0.35	25.50	51.00	43.88	65.00
30	0.36	24.08	48.16	43.52	64.00
31	0.37	22.62	45.24	43.16	63.00
32	0.38	21.12	42.24	42.78	62.00
33	0.39	19.58	39.16	42.40	61.00
34	0.40	18.00	36.00	42.00	60.00
35	0.41	16.38	32.76	41.60	59.00
36	0.42	14.72	29.44	41.18	58.00
37	0.43	13.02	26.04	40.76	57.00
38	0.44	11.28	22.56	40.32	56.00
39	0.45	9.50	19.00	39.88	55.00
40	0.46	7.68	15.36	39.42	54.00
41	0.47	5.82	11.64	38.96	53.00
42	0.48	3.92	7.84	38.48	52.00
43	0.49	1.98	3.96	38.00	51.00
44	0.50	0.00	0.00	37.50	50.00
45	0.55	–10.50	–21.00	34.88	45.00
46	0.60	–22.00	–44.00	32.00	40.00
47	0.65	–34.50	–69.00	28.88	35.00
48	0.70	–48.00	–96.00	25.50	30.00
49	0.75	–62.50	–125.00	21.88	25.00
50	0.80	–78.00	–156.00	18.00	20.00
51	0.85	–94.50	–189.00	13.88	15.00
52	0.90	–112.00	–224.00	9.50	10.00
53	0.95	–130.50	–361.00	4.88	5.00
54	1.00	–150.00	–300.00	0.00	0.00
55	1.05	–170.50	–341.00	–5.13	–5.00
56	1.10	–192.00	–384.00	–10.50	–10.00
57	1.15	–214.50	–429.00	–16.13	–15.00
58	1.20	–238.00	–476.00	–22.00	–20.00
59	1.25	–262.50	–525.00	–28.13	–25.00
60	1.30	–288.00	–576.00	–34.50	–30.00
61	1.35	–314.50	–629.00	–41.13	–35.00
62	1.40	–342.00	–684.00	–48.00	–40.00
63	1.45	–370.50	–741.00	–55.13	–45.00
64	1.50	–400.00	–800.00	–62.50	–50.00

Table 3 Calculated Values of $(\bar{X}-L)/s$ or $(u-\bar{x})/s$

(*Clause* 6.2.2.1)

Sl No. (1)	$X-L/s$ or $U-X/s$ (2)	Quality Rating (3)
1	0.1	2.5
2	0.2	5.0
3	0.3	7.5
4	0.4	10.0
5	0.5	12.5
6	0.6	15.0
7	0.7	17.5
8	.08	20.0
9	0.9	22.5
10	1.0	25.0
11	1.1	27.5
12	1.2	30.0
13	1.3	32.5
14	1.4	35.0
15	1.5	37.5
16	1.6	40.0
17	1.7	42.5
18	1.8	45.0
19	1.9	47.5
20	2.0	50.0
21	2.1	52.5
22	2.2	55.0
23	2.3	57.5
24	2.4	60.0
25	2.5	62.5
26	2.6	65.0
27	2.7	67.5
28	2.8	70.0
29	2.9	72.5
30	3.0	75.0
31	3.1	77.5
32	3.2	80.0
33	3.3	82.5
34	3.4	85.0
35	3.5	87.5
36	3.6	90.0
37	3.7	92.5
38	3.8	95.0
39	3.9	97.5
40	4.0	100.0

6.2.2.2 *Rating of aesthetic/attribute parameter of a product*

Any one of the following methods may be adopted:

a) Visual inspection — Each piece in the sample is inspected, merit score awarded as per seriousness of non-conformity:

Status	*Score*
Unsatisfactory	0
Satisfactory	6
Good	8
Very good	10

(This may be treated as an illustrative example only. The relative percent Q_R and/or status groups may be chosen on practical considerations depending on likely losses each status imparts.)

Score of each sample piece is calculated and the average score is the Q_R of a lot.

NOTE — To discriminate the pieces as good, bad, etc, maintain standard specimen samples and rate them as above.

b) Inspection classifies a piece as conforming or non-conforming or possessing number of non-conformities

From standard inspection tables [*see* IS 2500 (Part 1)] find sample size (n) and rejection number (r) Compute the Q_R as follows:

$$Q_R = 100 - 100\,(d/r)^2$$

where 'd' is number of non-conformities or non-conforming pieces observed in the sample.

NOTE — *See* Table 4.

Table 4

(*Clause* 6.2.2.2)

Sl No. (1)	d/r (2)	Quality Rating (3)
1	0.00	100.00
2	0.01	99.99
3	0.05	99.75
4	0.10	99.00
5	0.15	97.75
6	0.20	96.00
7	0.25	93.75
8	0.30	91.00
9	0.35	87.75
10	0.40	84.00
11	0.45	79.75
12	0.50	75.00
13	0.55	69.75
14	0.60	64.00
15	0.65	57.75
16	0.70	51.00
17	0.75	43.75
18	0.80	36.00

Table 4 (*Concluded*)

(*Clause* 6.2.2.2)

Sl No. (1)	d/r (2)	Quality Rating (3)
19	0.85	27.75
20	0.90	19.00
21	0.95	9.75
22	1.00	0.00

6.2.3 Q_R *of a Lot*

Q_R of a Lot is the average or minimum Q_R of all items as the situation demands.

NOTES

1 Item or Lot Q_R, if there is only one parameter, and it is negative, it may be treated as zero. However, if there is more than one parameter, the negative score of parameters, if any, may be retained as such and only if average is negative, it may be treated as zero.

2 If Q_R of an item of lot is more then 100, it shall be taken as 100.

3 Options are minimum of minimum, average of averages or any other suitable combination; all having their pitfalls. Hence proper engineering judgment should be applied, based on their stakes.

4 Does not apply to **6.2.2.1** a) 2).

6.3 Price Rating

Price rating (P_R) for a lot or consignment is given by:

$$P_R = \frac{P_U - P}{P_U - P_L} \times 100$$

where

P_L = lowest of the price quoted by suppliers for the product,

P_U = highest price quoted, and

P = price quoted by the supplier being rated.

6.3.1 *Inclusion of Life Cycle Cost*

Consideration of initial cost, that is, the cost of procurement and installation, alone is not adequate for some products, for example, air-conditioners, photocopying machines, and vehicles; since additional costs, namely, operating cost, maintenance cost, disposal cost and any unanticipated additional premium of freight expenses have also to be taken into account over a useful life. In this context, reference may be made to IS 13174 (Part 1) and (Part 2). In such, cases, the formula for price rating given in **6.3** is modified as follows:

$$P_R = \frac{LP_U - LP}{LP_U - LP_L} \times 100$$

where

LP_U = Estimated life cycle cost per year for highest quoted price,

LP_L = Estimated life cycle cost per year for lowest quoted price, and

LP = Estimated life cycle cost per year for the price quoted by the supplier being rated.

Life cycle cost is the sum of initial cost and support cost. Support cost is the sum of operating cost, maintenance cost and disposal cost. The procedure for calculation of estimated life cycle cost per year is illustrated with the help of an example given in Annex A.

6.4 Delivery Rating

Delivery rating (D_R) for a lot or consignment depends upon the quantity supplied within the stipulated delivery time including product development time, wherever relevant and also on the actual delivery time for the full consignment. The delivery rating may, therefore, be obtained by the following formula:

$$D_R = \frac{Q_1}{Q} \times \frac{T}{T \times P + T_1 \times q}$$

where

Q = quantity agreed to be supplied within the stipulated delivery time,

Q_1 = actual quantity supplied within the stipulated delivery time,

T = agreed delivery time for the full consignment,

T_1 = actual delivery time for the full consignment,

P = Q_1/Q, and

q = $1 - P$.

Example: Suppose a supplier has promised to supply 500 products in 15 days. He supplied 400 products in 15 days and all the 500 products in 20 days.

Here $Q_1 = 400$, $Q = 500$, $T = 15$ days, $T_1 = 20$ days and

$$p = \frac{Q_1}{Q} = \frac{400}{500} = 0.8$$

$$D_R = \frac{400}{500} \times \frac{15}{(15 \times 0.8) + (20 \times 0.2)} \times 100 = 75.0$$

6.5 Service Rating

Service rating (S_R) is to be assigned by the purchase department as in Table 5 for each consignment.

Table 5 Service Factors and Scores

(*Clause* 6.5)

Parameter	Maximum Score
Co-operativeness and readiness to help in emergencies	S_1
Readiness to replace rejected material	S_2
Providing support documents in time	S_3
Promptness in reply	S_4
Co-operation in delivering and implementing measures or avoiding recurrence of defects/ complaints	S_5
Total	100

6.6 System Rating

Management defines requirements under 'management responsibility'; necessary resources are determined and applied within 'resource management'; processes are established and implemented under 'product realization'; and results are measured, analyzed and improved through 'measurement analysis and improvement'.

The system rating S_Y of a supplier is defined as follows:

$$S_Y = \frac{S_M + S_R + S_P + S_I}{4}$$

where

S_M = System rating based on management responsibility,

S_R = System rating based on resource management,

S_P = System rating based on product realization, and

S_I = System rating based on measurement, analysis and improvement.

For each of the system rating, scale of 0-100 shall be used as below:

Reference may be made to IS/ISO 9004 for guidance.

6.7 The composite supplier rating (S_R) for the lot is obtained by using weightages for individual ratings as follows:

Rating	*Weightages*
Quality (Q_R)	W_1
Delivery (D_R)	W_2
Price (P_R)	W_3
Service (S_R)	W_4
System (S_Y)	W_5
Total	100

$$S_R = \frac{W_1 Q_R + W_2 D_R + W_3 P_R + W_4 S_E + W_5 S_Y}{100}$$

6.7.1 Weight W_5 be kept 30 and sum of values of W_1, W_2, W_3 and W_4 as 70. The weights for any four factors are to be decided by the management based on experience and judgment. The weights must be determined on the basis of the criticality of the product with respect to 'quality' and 'delivery'. From the viewpoint of 'quality', the product may be categorized into three classes, such as critical, major and minor products. Similarly for 'delivery', the products may be categorized as on 'critical path', 'sub-critical path' and 'non-critical path'. Therefore, if both 'quality' and 'delivery' each being categorized into three classes, are taken together, there will be nine classes in total as given in Table 6. For each of these nine classes, the management shall select the weights for the four factors. However, some guidelines for selection for the weights are as follows:

a) The sum of the weights for the four factors is 70;

Score →	10	20	20	30	20	20	Total
Parameter →	Familiarity	Documentation	Implementation		Effectiveness	Continuous Improvement	
			*Partial	Full			
	No	No	No	No	No	No	00
	Yes	No	No	No	No	No	10
	Yes	Yes	No	No	No	No	30
	Yes	Yes	Yes	No	No	No	50
	Yes	Yes	No	Yes	No	No	60
	Yes	Yes	No	Yes	Yes	No	80
	Yes	Yes	No	Yes	Yes	Yes	100

*means at least 60% implementation otherwise the supplier gets 0 score in implementation category.

b) The weight for 'quality' shall be in order of 'critical', 'major' and 'minor' products. The same principle is adopted for the factor 'delivery';

c) For the same classification of the factors 'quality' and 'delivery', equal weights may be given to both the factors;

d) If one factor is critical and the other is major or minor, the critical factor gets more weightage as compared to the other; and

e) The weights for factors 'price' and 'service' are varied depending upon the cross-classification with respect to the factors 'quality' and 'delivery' so that the sum of the weights for all the four factors is 70.

Keeping in view the above guidelines, the weights for the four factors may be as given in Table 6.

Table 6 Weights For Individual Factors

(*Clause* 6.7.1)

Delivery	Weightage	Quality		
		Critical	Major	Minor
(1)	(2)	(3)	(4)	(5)
Critical Path	W_1	30	25	15
	W_2	30	35	35
	W_3	5	5	15
	W_4	5	5	5
Sub-critical Path	W_1	35	25	15
	W_2	20	25	25
	W_3	10	15	15
	W_4	5	5	15
Non-critical Path	W_1	35	25	15
	W_2	15	15	15
	W_3	10	20	30
	W_4	10	10	10

6.7.1.1 It may be mentioned that the weights given in Table 6 are only for illustration and the management is free to alter these weights depending upon the conditions of the procurement of products.

6.8 Based on the supplier ratings calculated as in **6.7**, each supplier may be classified into four classes. An example to illustrate the classification scheme is given below :

Rating Obtained	*Class of Supplier*
Above 90	A
Above 75 up to 90	B
Above 50 up to 75	C
Up to 50	D

6.9 Data Acquisition System

The data on supplier rating for each supplier shall be properly tabulated and summarized. For this purpose, the various data acquisition systems being followed are described in **6.9.1** to **6.9.3**. Each of these systems has its place in industry. The management must decide the systems depending upon the needs of organization.

6.9.1 *Basic System*

This is the simplest system which utilizes individual cards for each supplier without regard to the type of products supplied. The data, after inspection is entered with lot disposition. The lots may be designated as accepted, accepted with deviation, returned to supplier, scrap or repaired. The main advantage of this system is its low cost and the quick visual picture of supplier performance obtained by scanning the number of lots accepted or rejected, and disposition of rejected products. The disadvantage of this system is the lack of accumulated history by product catalogue number. This looses an effective tool for corrective action. For example, if many lots of an product are being accepted with deviation without any change in the specification, then internal corrective action may be taken by quality control department to persuade design engineer to relax the specifications. In addition, this system is restricted to manual analysis (lengthy, if there are many suppliers) and has serious communication limitations. It also does not permit quick comparisons.

6.9.2 *Quality History Sheet System*

In this system, product-wise history sheets are prepared for each supplier, there by eliminating one of the major faults of the basic system. The added amount of paperwork done in this system must be weighed against the potential corrective actions and the advantage of comparing various suppliers. For the suitable performa to be used for this purpose, reference may be made to IS 7200 (Part 3).

6.9.3 *Electronic Data Processing System*

This system utilizes electronic data processing equipment. The pertinent information for each inspected lot is keyed in the Electronic Data Processing (EDP) equipment. In this system, multiple facility operations may also be carried out, for example, facility performance as well as the overall corporate performance. Suppliers can be grouped into component type categories, as set up jointly by accounts and purchase departments.

6.10 Analysis of Supplier Rating Reports

6.10.1 The most important rule in analyzing the supplier report is to avoid jumping to conclusions. In case of low rating, sources for the same have to be identified and communicated to supplier for improvement. Circumstances beyond supplier's control and not readily apparent could also be the reasons for a poor supplier rating.

6.10.2 The trend of rate of rejections over a period of time may be obtained by preparing time-oriented graphs and periodically reviewing the trends. Important review periods may be six months or one year.

6.10.3 Keeping in view the above points, suppliers that require corrective actions for quality control are chosen. Working with the quality index and the percent of lots accepted with deviation *versus* those that require return or scrap, a decision is made on the main area for corrective action — 'In House' or 'At the supplier end' and if many lots are accepted with deviations then most likely the specifications are too tight or suppliers are not given adequate time to take corrective action. Possibly no other supplier would attempt these jobs.

6.10.4 In many cases the facts do not become available until a supplier or vendee visit is made. However, the supplier rating system highlights many in-trouble suppliers as well as the few that can be excused.

6.10.5 The quality rating should be independently analyzed prior to the review of any combined rating (which includes price/delivery/service). The review should be made against set goals so that progress can be measured towards the ultimate certification target.

6.10.6 The question of price is not as straight forward as it apparently seems. What are the hidden costs involved with continuous purchases from a sub-standard supplier ? The cost of rejection on paperwork, man-hour spent in deciding the rejection/deviation disposal, tied up inventory and effects on production/ schedules seriously affect the true total cost and value of the product.

6.10.7 A summary report by quality control should show the static status and the trend. The corrective actions are to be directed both by component based and supplier based. This report is issued based on a meeting with the quality manager or equivalent and the purchasing manager. It confirms and amends the initial quality control rating analysis and directs corrective action to the respective departments.

6.11 Circulation of Supplier Rating Reports Within Organization

6.11.1 The circulation of supplier rating information within the organization has many purposes, and the format and method of disbursement should be tailored to these objectives as each functional manager has different needs and requirements.

6.11.2 *The Procurement Function*

The supplier rating report given to procurement should be fairly extensive, as it is imperative that the purchaser has all pertinent information when in communication with the supplier.

6.11.2.1 A cover memo should always accompany the report. The memo should describe the origin of the data; briefly tell how it was obtained and the formula used to arrive at the rating figure. Each symbol in the formula should be carefully explained. Occasionally, it may seem to the quality management group that this periodic repetition of the explanation is superfluous, but the report's end use in procurement must be considered. Procurement personnel certainly cannot be expected to master the statistical aspects of the rating system. Yet this information must be available during discussions with the supplier. As each succeeding report replaces the previous issue, the old report will be disposed off, or at best, depth-filed, and along with it, the explanation. It is best to replace the resume on how the report was generated with each issue in a cover memo. This cover memo may be standardized.

6.11.2.2 The second sheet should be a statistical status report on trends in purchased material control. Number of lots received, their disposition, that is, accepted, accepted with deviation, rejected, returned to supplier, scrap and rework and material review committee actions should be included. The purchase department may also be interested in percentage of 'acceptable lots' *versus* suppliers and any recent significant changes in this figure.

6.11.2.3 If Electronic Data Processing (EDP) methods are used, the data processing printout should constitute the major body of the report. It not only saves the time in rewriting the report but also by using the original document it leads to credibility when it is reviewed by the supplier. The name of the supplier is to be put into a numeric code as it is not advisable to expose the names of other sources to a supplier for obvious reasons, and also the decisions will be unbiased in evaluation of suppliers' performance. If a coding system is used, it is essential that an updated code sheet be included in each package, though it should not be physically attached to the rating sheets for ease of handling.

6.11.2.4 Each group of components shall be listed on a separate sheet to facilitate buyer-to-buyer break-up of the package. In large organizations where more than one buyer makes purchases within a component group, it may be helpful to have a print-out on each buyer code number giving each buyer's responsibilities on a separate sheet. Another benefit of separate component group lists is the easy reproduction of a pertinent section to be sent to the supplier.

6.11.2.5 At the end of the report, suggestions as to how the information may be used by procurement department may be included. For instance, it may be explained how this supplier rating of past performance may be applied to bid the price to arrive at the most economical decision. Also advice on the minimum rating for acceptance of supplier performance should be included. Other notes may include a list of suppliers, which may need quality control assistance or counseling.

6.11.3 *Quality Management Function*

The copy of the supplier rating is best used when reviewed by the responsible quality manager and marked as a priority list for the quality engineering action. Quality costs associated with purchased material are generally recognized as following a pareto curve. Generally, large amount is spent in solving problems of few suppliers, regardless of the cost of the product produced. If quality management department concentrates its attention on the vital few instead of the trivial many, the organization reaps many benefits. The order of this workload can best be scheduled by the use of the supplier rating report.

6.11.4 *Top Management Function*

Most corporate executive teams use 'Management by objective' technique today, so that the supplier rating report designated for their perusal should be aligned with those principles.

6.11.4.1 The first page should consist of a summary of status figure. Indications of how many suppliers in each component class are acceptable and not acceptable should be prominent. Key areas of concern should be highlighted. If rupees are used as the rating figure, the amount of purchased material quality costs in the current rating period should be enumerated. It may be helpful to list a break-up of quality costs by indicating fixed costs and specific costs incurred for a component.

6.11.4.2 Information on lots received and their results, identical to that given to procurement, should follow the supplier status information.

6.11.4.3 A separate form, possibly also using the graph format, should indicate the results of the supplier control effort to date. This display should show the degree of change in the amount or percentage of acceptable *versus* total suppliers between the current period and for a reasonable period in the past. The period in the past depends somewhat on the length of the rating period. The selection of the time span should result in a number of bars and lines for numbers, sufficient to make comparison. If the rating period is monthly, the previous six months is an effective base. If quarterly information is available, the five previous quarters is a significant span.

6.11.4.4 The basic purpose of these summation sections of the report is to advise management on policy decisions regarding the cost and time given to this area of control, and serves as a report return on investment from the present effort.

6.11.4.5 For giving additional information on rating system to the management, it is recommended that either the extract along with relevant data for a particular area of concern, as described in **6.11.2**, may be given or close the report with a note that details are readily available by phone or personal request from the originating quality management group. The report should be brief and concise. The bulky package may be reserved until 'time is available', while the concise report should be dealt within the normal course of the day's work.

6.11.5 *Other Functions*

Reports of essentially the same format as procurement should be given to other concerned departments usually at their request. An example, the report can be useful to the production or materials department. It can alert them as to which of the suppliers are in difficulty so that they can anticipate material or component shortage problems that could affect their schedule.

6.12 Supplier Rating Report to the Supplier

6.12.1 The view taken by the purchase towards rating philosophy affects all sections of the report to suppliers. Is the rating figure intended to be ranked or compared against the performance of other suppliers in the same field or is the rating designed only to be compared to an ultimate standard? If a rank order system is to be used all reports of rating to the supplier must include both supplier's performance rating and those of his competitors. As indicated earlier, it is necessary to code all identifications. If the supplier rating is only to be related to a standard, then single supplier name and his performance results comprise the report.

6.12.2 The supplier rating report may be forwarded to the supplier either through the quality control department or through procurement department. The decision is based on the individual organization structure and which department is staffed to accomplish the task. If forwarded through quality control department, it must be clearly understood that the quality control is acting with delegated authority from the procurement department. Procurement department must remain as the supplier's prime contact point.

6.12.2.1 If possible, permission should be obtained to forward a copy of the report to the supplier quality control manager directly because 'filtering' effect of running the report through many other departments prior to quality management review, reduces the amount of corrective action to be taken at the supplier's plant.

6.12.2.2 The act of placing the report in the supplier's hands may be accomplished completely by mail or entirely by personal contact. Most successful systems, however, combine these two methods. Those suppliers who fall in the normal range (that is, average quality and little change from the previous report) receive their report by mail. The exceptional suppliers, on either side may be called for discussion. In some organizations, the supplier's sales representative checks in periodically. This opens another avenue of disbursement, as the sales representative may receive the rating report during his monthly visit.

7 ASSESSMENT OF NEW SUPPLIERS

7.1 New suppliers shall be assessed and classified by the supplier rating (SR) Committee.

7.2 On the recommendation of the SR Committee, the standards, R&D Department, Material Management Department and Procurement Department will forward copies of the supplier's capability and capacity report forms as given in Annex B to a new supplier. The supplier shall give complete information as required in this supplier capacity report.

7.3 The procurement department will carefully scrutinize the complete supplier capacity report. It will examine if any statements furnished by the suppliers are inadequate or ambiguous. In case further information is required, it will be obtained from the supplier.

7.4 The Supplier Rating Committee or its representative may visit the premises of the supplier to gain first hand knowledge of all his activities and seek clarification on any aspect of his working. The report will be prepared as in Annex C. Wherever possible, information will be obtained on products similar to those for which the supplier is to be approved/rated.

7.5 The supplier capacity report duly verified and the supplier appraisal report will then be placed before the Supplier Rating Committee by the nominated department ~~with its~~ recommendations. On the basis of the information collected, supplier-rating committee will select suppliers with their classifications.

7.6 The Secretary of the Supplier Rating Committee should regularly circulate to the Data Processing Centre, if applicable, the list of new suppliers, showing their classification. The Data Processing Centre will include the names of these suppliers also in the periodical printouts.

8 SUPPLIER PREFERENCES

8.1 The procurement department may adopt the following guidelines for preferential choice among the three (or more, if necessary) classes of supplier (*see* **6.8**).

8.2 Class A Suppliers

8.2.1 Class A suppliers are the most satisfactory suppliers who should be located at the earliest opportunity. Efforts should be made to establish a long-term relationship with this class of suppliers only.

8.2.2 As far as possible, only products of Class A suppliers should be used. The R&D/Standards Department should use new designs of equipment, products of Class A suppliers.

8.2.3 Whenever a choice has to be made between two (or more) between Class A suppliers, the price factor may be used as guide.

8.2.4 If a choice is to be made between Class A Supplier and Class B supplier and if the quotation of the Class A supplier is higher, the preference for the Class A supplier need not be absolute, particularly if Class B supplier is a new one to whom the classification has been provisionally allotted. A limited order on the competing Class B supplier, at the discretion of the Procurement Department, may be recommended.

8.2.5 If a choice is to be made between Class A and Class C supplier, the preference should be for the Class A supplier only, even though his quotation is higher.

8.3 Class B and Class C Suppliers

8.3.1 It would perhaps be inevitable to procure products from Class B and Class C suppliers also, as it would not be always possible to deal with Class A suppliers for all products in a manufacturing organization. It is, therefore, essential to provide all help to these two classes of suppliers to enable them to come up to the level of Class A suppliers through suitable technical assistance.

8.3.2 When a choice is to be made between Class B supplier and Class C supplier, preference shall be given to Class B supplier provided the price difference is not substantial.

8.4 Single Source of Supply

8.4.1 There are many occasions wherein only one source of supply exists. If the supplier is Class A supplier, efforts should be made to prevent drying up of the source or fall of his quality rating. If the supplier happens to be Class B or Class C supplier, efforts should be made to enable him to achieve higher rating.

8.4.2 Efforts shall also be initiated simultaneously to develop alternate sources both in the interests of competition as also to provide an insurance against a force majeure.

9 ROLE OF SUPPLIER RATING IN REWARD SYSTEMS

9.1 General

9.1.1 If a supplier rating system is in use, it naturally follows that any supplier reward decisions must consider the figures contained in the supplier rating report. A supplier award generally takes into consideration factors other than quality, such as scheduling, promptness, supplier management attitude, etc. Purchasing contributes this information towards the award decision.

9.1.2 Of course, it must be recognized that the real reward for a high-ranking supplier is security of his present order level and, hopefully, additional business. However, motivation has use for short-term goals and, if allowed, the advertising effect of trophies and certifications can be applied, by the supplier to his efforts to obtain orders from other organizations.

9.2 Awards

9.2.1 Time-span award can also be thought of 'Supplier of the year' and 'Supplier of the month'. This type of award is most generally associated with 'rank order' rating system.

9.2.2 The award period, incidentally, does not have to agree with the rating period. For instance, quarterly rating could be applied to a yearly award by collecting the four results. If such a plan is anticipated, it should be worked into the EDP programme.

9.2.3 When the rating implies the degree of achievement towards a goal or ultimate standard, other types of awards are better used. One popular application of time-span to this style of rating involves awarding a certificate the first time the supplier achieves a certain performance level, with provisions for an additional symbol to be attached for each subsequent period in which the level is maintained.

9.3 Certification

9.3.1 The comparison to a standard rating method actually becomes one form of supplier certification, another place where the supplier rating system can contribute to purchased material control.

9.3.2 The achievement of a certain level of quality for an extended period of time is, by far, the best indicator that a supplier might be able to certify his material to the purchaser. This could result in reduced incoming inspection for the purchaser. The benefit to the supplier is most obvious. If the supplier spends less to put the supplier's product into further assembly steps, the supplier's competitive position gets enhanced. While other factors may be considered in appraising supplier's performance for certification, the formula should be heavily weighed on the rating report results.

9.3.3 Some organizations may publish or allow publication of their 'certified supplier list' whether publication or permission to use the certification in the supplier's advertising is involved, the conditions under which either type of proclamation is, or is not permissible should be made crystal-clear to the supplier in writing at the time the award is made. As a matter of good practice, the purchaser's corporate legal staff should participate in the wording of this document.

ANNEX A

(*Clause* 6.3.1)

CALCULATION OF ESTIMATED LIFE CYCLE COST PER YEAR

A-1 LIFE CYCLE COST

A-1.1 As mentioned in **6.3**, the life cycle cost is the sum of initial cost and support cost. Support cost is the sum of operating cost, maintenance cost minus disposal cost. One of the methods for calculating support cost is Net Present Value (NPV). The inputs required for determining NPV of support cost are as follows:

a) n, desired period of operation of the product in years;

b) Year-wise break-up of :

   1) Operating cost, C_{Oj}
   2) Maintenance cost, C_{Mj}

   $\Big\}$ for $j = 1$ to n

   The supplier should give documentary evidence for the two costs to the satisfaction of the user;

c) C_D, disposal value at the end of n years; and

d) i, percent interest rate, based on the present government lending rate.

$$\text{Support cost } (P_S) = \sum_{j=1}^{n} \frac{(C_{Oj} + C_{Mj})}{[\,1 + i/100\,]^j} - \frac{C_D}{[\,1 + i/100\,]^n}$$

$\dfrac{1}{[\,1 + i/100\,]}$ is also known as discount factor

$$\text{Let } b = \frac{1}{[\,1 + i/100\,]}$$

$$P_S = \sum_{j=1}^{n} b^j (C_{Oj} + C_{Mj}) - b^n C_D$$

In the above method, it has been assumed that:

a) the cash outflow for operating and maintenance costs takes place at the end of an year, and

b) the old product is sold immediately at the end of the desired operating period (If the old product is sold in the following year of the desired period, then $b^n C_D$ will become $b^{n+1} C_D$ in the expression for P_S.)

Example: A photo-copying machine is to be bought. The utility of the machine is expected to be 10 000 copies per month approximately. The user has decided to sell the machine at the end of 5 years (after 600 000 copies approximately). The manufacturer has submitted the following information in his quotation:

a) Initial cost : Rs 100 000;

b) Toner — 3 bottles
   Dispersant — 6 bottles $\Big\}$ Rs 1 500 for every 30 000 copies

c) Service charges:

   1) Free for the first year; and
   2) Rs 2 500 for every subsequent year; and

d) Cost of drum: Rs 6 000, expected to be replaced for every 150 000 copies.

Approximately 40 percent of initial cost could be realized at the end of 5 years.

The year-wise break-up of operating and maintenance costs and the NPV of each cost assuming i = 12 percent are shown below:

Sl No.	Cost Nomenclautre	NPV (Rs)	After				
			First Year	Second Year	Third Year	Fourth Year	Fifth Year
i)	Opeating cost (C_{Oj}) 1) Toner and dispersant 2) Service charges	 21 630 6 780	 6 000 —	 6 000 2 500	 6 000 2 500	 6 000 2 500	 6 000 2 500
ii)	Maintenance cost - Drum replacement (C_{Mj})	12 870	—	6 000	6 000	6 000	—
iii)	Disposals value (C_D)	–22 680	—	—	—	—	–40 000
	P_S, Support Cost	18 600					

Calculation of NPV

$$b = \frac{1}{(1+12/100)} = 0.93$$

NPV of toner and dispersant = 6 000 b + 6 000 b^2 + 6 000 b^3 + 6 000 b^4 + 6 000 b^5 = Rs 21 630

NPV of service charges = 2 500 b^2 + 2 500 b^3 + 2 500 b^4 + 2 500 b^5 = Rs 6 780

NPV of drum replacement = 6 000 b^2 + 6 000 b^3 + 6 000 b^4 = Rs 12 870

NPV of disposal value = $b^5 \times$ 40 000 = Rs 22 680

Calculation of Life Cycle cost per Year

Estimated life cycle cost = Rs 100 000 + Rs 18 600
= Rs 118 600

Estimated life cycle per year = 118 600/5 = Rs 23 720

ANNEX B

(*Clause* 7.2)

SUPPLIER CAPABILITY REPORT

PROFORMA 1 GENERAL

1. Name of the company
2. Name of the supplier
3. Trade name
4. Address
5. Telephone number
6. E-mail
7. Fax number

Factory/Godown	Head Office

8. Number of business — Manufacturer/Sole selling agent/ Dealer/Trader/Project engineer/ Agent/Assembler
9. Nature of the company — Proprietary/Partnership/Private limited/ Public limited
    a) In case of a proprietary company names, address and telephonic number of the proprietor
    b) In case of partnership company, names and address of the partners, with telephonic numbers
    c) In case of public/ private limited company, name, address and telephone numbers of the chief executive
10. Persons to be contacted for clarifications:

Name	Official Capacity	Telephone Number

11. Total area of factory:

Covered

Uncovered

12. a) Total number of employees on date:

Administrative

Technical

b) Are the minimum requirements of experience and qualification laid down for production manager and supervisory staff ? If so, give details

c) Are the minimum requirements of experience and qualification laid down for quality control manager and inspection staff ? If so, give details

13. Type of industry: Small scale/Medium scale/Large scale

a) In case of small scale industry, registration number and date with the director of industries

b) In case of medium scale/large scale industry, factory number alloted by the Director General of technical development

14. Indicate classes/type of equipment, supplies, material and/ or services in which you are interested.

15. Are you on the list of approved suppliers/ contractors on DGS & D, Railways or Government undertakings? If so, give registration number, date and products for which registered (copy of the registration/rate contract may be furnished)

16. Have you ever been banned or removed from any list of approved government contractors/suppliers? If so, give details

17 Year of commencement of manufacture

18. Annual turnover during the last three years

19. Electric power:

Sanction

Installed

20. Whether adequate facilities are available for:

a) Water supply

b) Fire fighting

c) Security

21. Have you any local branch office /agents? If so, please furnish details with address and phone number, etc.

PROFORMA 2 TECHNICAL

1. a) Duration for which factory is in production

   b) Total production capacity per annum

   c) Percentage capacity available for our organization

2. If manufacturer, give following details:

Manufacturing capacity as approved by the Government	Industrial licence No. and date	Product	Quantity licensed

3. Brief details of products manufactured:

Sl No.	Product	Description	Annual production for the last three years

4. Facilities for testing and inspection:

Description of instruments and gauges available	Range	Least count

5. Details of machines in operation

6. Number of employees:

Status Division	Graduate		Diploma	Skilled	Unskilled
	Technical	Non-technical			
Production					
Quality control					

7. Source of raw materials:

Type	Source

8. Are imported raw materials used ? If so, give details:

Brief description	Estimated CIF value	Percent of FE content in finished product

9. Have your product been tested by any agency ?
If so, indicate details

10. Foreign collaboration, if any:

Product	Name and address of the collaborator	Year of collaboration	Whether current or not

11. Details of laboratory facilities

12. Do you have facilities for inspection of bought out materials ?

13. Do you have testing facilities for bought out materials ? If not, what is done for testing?

14. Is process inspection done during manufacture?

15. Do you have finished product inspection set up?

16. Can you comply with the quality certificate wherever called for ?

17. Are gauges/instruments in use periodically checked ?

If agents, give particulars of agencies with true copy of authorization. Also give the following information:

Are you already doing business with us or our sister units ?

If so, give following details for the last 12 months ?

a) Registration number, if registered with us

b) Total value of materials tendered

c) Total value of purchase orders tendered

d) Total value of material supplied

18. Principal customers:

Name and address of the customer	Product supplied	Value of supply (Rs)	Year of supply

19. Future plans:

a) Expansion programme

b) Installation of new machinery

c) Additional test facilities

d) Any other information you would like to furnish

PROFORMA 3 COMMERCIAL

1. Name and address of your bankers
2. Value of current assets as on date
3. Value of current liabilities as on date (attach balance sheets for last three years)
4. Net fixed assets
5. Value of total sales during the previous year
6. Value of orders in hand
7. Value of total capital employed
8. Source of finance
9. Borrowing limits as sanctioned by bank, if any
10. Sales tax registration number
11. Excise registration number
12. Are your products covered by warranty? If so, state:
    a) Period
    b) Scope of warranty
13. Would you provide after sales service ? If so, give details
14. Have you obtained income tax clearance certificate ? If so, state number and date, and enclose a copy of the same showing details of income assessed, tax demanded and paid for the last three years
15. List of enclosures

16. Any special information

I CERTIFY THAT THE INFORMATION SUPPLY HEREIN (INCLUDING ALL PAGES ATTACHED) IS CORRECT TO THE BEST OF MY KNOWLEDGE.

SEAL

SIGNATURE ....

NAME ....

DESIGNATION ....

PLACE ....

DATE ....

PROFORMA 4 REMARKS BY THE VISITING OFFICER

1. Name and address of firm visited
2. Date of visit
3. Have you verified the details submitted by the firm in Proforma 1, Performa 2 and Proforma 3. If so, any observation/discrepancy ?
4. Please state the condition of the plant and machinery held by the firm
5. How are the management-labour relations? Any labour problem in the past three years ?
6. Please indicate the funds and manpower allotted for R&D activities, if any
7. Does the firm purchase raw materials on suppliers guarantee or get it tested ? If tested, please name the agency

8 Does the firm has separate inspection agency of their own or outside for inspection and acceptance of bought out products ? In case of outside inspection agency, please give details

9. Does the firm maintain goods inwards (acceptance and rejection) records ?
10. Does the firm follow any quality control programme? Alternatively, is there evidence of scientific quality management by way of Q. Manuals Q. Plans, by checklists, SQC techniques, etc ?
11. Does the firm maintain record of calibration of measuring instruments and test equipment ?

12 Does the firm maintains satisfactory QC records for:

a) Material control

b) Process control

c) Finished products

13. Is the environment conducive to the production of quality goods (Orderliness, lighting, cleanliness, in-and-around working conditions, etc) ?
14. Are non-conformities properly identified/ segregated and action thereof taken ?
15. Is the quality of on-going jobs satisfactory ?
16. Is the firm equipped with after sales service ?
17. Is the firm able to produce satisfactory evidence that the orders executed by them in past 6/12 months were within the stipulated delivery period ?

Were the supplies made without considerable rework/deviation ? Are you satisfied with the evidence produced ?

18. Do you find the evidence produced by the firm in being product in correspondence and in attending rejection/rework satisfactory ?

19. General remarks (visiting officer may indicate here his general opinion concerning management policies of firm towards quality, maintenance of delivery schedule, labour relations, number of years in particular business, etc)

Date

Place

Signature ....

Name ....

Designation ....

Organization/Deptt ....

ANNEX C

(*Clause* 7.4)

SUPPLIER APPRAISAL REPORT

PROFORMA 1 WORKS/PRODUCTION APPRAISAL

	Good	Above average	Satisfactory	Unsatisfactory
1. Experience, knowledge and capability of production manager				
2. Experience, knowledge and capability of supervisor				
3. Adequacy and quality of processing planning				
4. Effectiveness of production control system (in relation to target achievement)				
5. Effectiveness of costing system (in relation to control of price variations)				
6. Quality of plant and equipment				
7. Cleanliness of workshops				
8. Condition of stores				
9. Method of packing and despatch				
10. Return system for customer rejects				
11. Adequate quality control programme				
12. Segregation and identification of good from bad				
13. R&D facilities/lab facilities				

PROFORMA 2 QUALITY CONTROL/INSPECTION/TESTING

	Good	Above average	Satisfactory	Unsatisfactory
1. Organization				
2. Experience, knowledge and capability of quality control manager				
3. Availability, quality and quantity of tools, gauges, measuring and test equipment				
4. Calibration of gauges, measuring instruments and test equipments				
5. System of work orders, specification and drawings				
6. Raw material (identification receipt and issue procedures and documentation)				
7. Bought-out products (Specification and ordering procedures and documentation)				
8. Goods inwards (acceptance and rejections records)				
9. Stage by stage inspection/test (acceptance and rejection records)				
10. Final test/inspection (acceptance and rejection records)				
11. Despatch inspection procedures				
12. Corrective action feed-back				
13. Are there adequate quality control instructions?				

ANNEX D

(*Foreword*)

COMMITTEE COMPOSITION

Quality Management Sectional Committee, MSD 2

Chairman	*Representing*
Lt Gen H. Lal, PVSM (Retd)	Federation of Indian Chambers of Commerce and Industry, New Delhi
Members	
Shri S. C. Arora [*Alternate* to Lt Gen H. Lal, Pvsm (Retd)]	
Shri Avik Mitra Shri A. Roy (*Alternate*)	ASSOCHAM, New Delhi
Shri V. M. Manel Shri M. A. Kulkarni (*Alternate*)	Bajaj Auto Limited, Pune
Shri A. K. Verma Shri A. R. Sukla (*Alternate*)	Bharat Heavy Electricals Limited, New Delhi
Dr Sarita Nagpal Shri Rajan Anand (*Alternate* I) Shri G. Sunder Raman (*Alternate* II)	Confederation of Indian Industry, New Delhi
Shri S. N. Nandi	Department of Industrial Development, Ministry of Industry, New Delhi
Industrial Adviser (Elec) Shri A. Bandhopadhya (*Alternate*)	Development Commissioner of Small Scale Industries, New Delhi
Dr P. Das Gupta	Directorate General of Health Services, New Delhi
Shri N. M. Seshadri Shri R. Singh Chouhan (*Alternate*)	Directorate General of Ordnance Factory, New Delhi
Brig Gurdas Verma	Directorate General of Quality Assurance, New Delhi
Shri J. K. Khanna Shri Rajender Prasad (*Alternate*)	Directorate General of Supplies and Disposals, New Delhi
Group Captain P. K. Dutt Lt-Col R. K. Puni (*Alternate*)	Directorate of Standardization, Ministry of Defence, New Delhi
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Shri C. S. V. Narendra	Escorts Limited, Faridabad
Shri T. S. Narula Shri Rajiv Raizada (*Alternate*)	Export Inspection Council of India, New Delhi
Shri G. S. Jamadagni Shri S. D. Janakiraman (*Alternate*)	Hindustan Aeronautics Limited, Bangalore
Shri Amrik Mohan Singh	Hindustan Times Ltd, New Delhi
Shri Y. P. Khullar Dr Uday Ravi (*Alternate*)	Hospital Services Consultancy Corporation (India) Limited, New Delhi
Prof Arvind Seth Prof S. S. Handa (*Alternate*)	Indian Statistical Institute, Kolkata
Shri A. K. Rengari Shri S. Nagarjan (*Alternate*)	Indian Telephone Industries Ltd, Bangalore
Lt Gen J. S. Ahluwalia (Retd)	Institution of Engineers (India), Kolkata

(*Continued on page* 24)

(*Continued from page* 23)

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Dr S. K. Agrawal Shri Suresh Kumar (*Alternate*)	Powergrid Corporation of India Ltd, New Delhi
Shri K. Ganapathy Shri K. K. Muthu (*Alternate*)	Quality Circle Forum of India, Secunderabad
Shri S. Y. Ghare Shri R. I. Tanna (*Alternate*)	Siemens Limited, Mumbai
Shri Chandra Shekhar Shri S. K. Kimothi (*Alternate*)	Standardization, Testing and Quality Control Directorate, New Delhi
Shri Pran Nath Shri R. P. Singh (*Alternate*)	Steel Authority of India Limited, New Delhi
Prof S. P. Mukherjee Dr U. Mukhopadhyay (*Alternate*)	University of Calcutta, Kolkata
Dr K. L. Madhok Shri H. Wadhwa (*Alternate*)	VOICE, New Delhi
Prof A. N. Nankana	In personal capacity *(B - 109, Malviya Nagar, New Delhi 110017)*
Shri D. R. Sen	In personal capacity *(20/1 Krishna Nagar, Safdarjung Enclave, New Delhi - 110 029)*
Directorate General, BIS	[Representing Director General BIS (*Ex-officio member*)]

Member - Secretary
Shri A. K. Talwar,
Director and Head, MSD

Panel to Review IS 12040, MSD 2/P-2

Convener	*Representing*
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Shri R. B. Madhekar	Maruti Udyog Ltd, Gurgaon
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Shri T. V. Thothadri	Directorate General of Quality Assurance, New Delhi
Shri M. S. Arun Kumar	Kirloskar Electric Company Ltd, Bangalore
Prof S. C. Chakraborty	Indian Statistical Institute, Kolkata
Shri B. S. Bhatia	Ordnance Factory Board, Jabalpur
Prof A. N. Nankana	In personal capacity *(B-109 Malviya Nagar, New Delhi 110017)*

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This Indian Standard has been developed from Doc : No. MSD 2 (146).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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Printed at New India Printing Press, Khurja, India